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Application No. : 09/665,771 Confirmation No. 8740
Applicant : Edward Joseph Urankar, et al.
Filed : September 20, 2000
TC/AU : 1771
Examiner : Elizabeth Cole

Docket No. : 7797XMQ
Customer No. : 27752

Mail Stop Non-Fee Amendment
The Commissioner for Patents
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Alexandria, VA 22313-1450

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AMENDMENT AFTER 1ST OFFICE ACTION UNDER 37 CFR § 1.111(c)

Dear Sir:

INTRODUCTORY REMARKS

This is responsive to the Office Action mailed on May 14, 2003. Please amend the above-identified application as follows.

Amendments to the Claims begin on page 2 of this paper

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REMARKS

Status of Claims

Claims 1-7, 10-15, 20, 21, 26-28, 31, 34, and 36 are pending in the above-identified application and stand rejected under 35 USC § 103(a).

Claim Amendments

Claims 1 and 26 have been amended to describe the thin until wet material as comprising a blend of fibers where the fibers consist of a blend of crosslinked cellulosic fibers and high surface area cellulosic fibers. Claim 36 has been amended to describe the fibers that are provided as consisting of crosslinked cellulosic fibers and high surface area cellulosic fibers. Support for this amendment can be found at page 13, line 30-page 14, line 10.

Rejections Under 35 USC § 103

Rejection over Rhim, et al. (WO 99/32060) in view of

Hollenberg, et al. (US 5,779,860) and Herron, et al. (US 5,137,537)

Claims 1-7, 10-12, 13-15, 26-28, 31 32 and 36 stand rejected under 35 USC § 103(a) as being obvious over WO 99/32060 (Rhim), in view of US 5,779,860 (Hollenberg, et al.) and US 5,137,537 (Herron, et al). Specifically:

- The Office Action asserts that the Rhim reference discloses a thin until wet structure comprising a compressed web of cellulosic fibers (it may also comprise non-cellulosic fibers such as conjugate fibers) which may be bonded with a temporary binding means (polyvinyl alcohol and hydrogen bonding are cited). The Rhim structure is said to have a dry density of 0.3 g/cc and is said to expand to 80% of its uncompressed thickness.
- The Office Action also admits that the Rhim reference fails to disclose expanded wet density, CDH or expansion rate. The Office Action notes that the Applicants had amended the claims to describe the material as comprising a fibrous component that consists of a blend of crosslinked cellulose fibers and high surface area fibers. The

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Office Action goes on to assert that, because the claims contain the transitional phrase "comprising a fibrous component" the claims are open to the inclusion of additional fibrous components, such as Rhim's non-cellulosic fibers. The Office Action then asserts that such a material (i.e., one with a second fibrous component) does disclose the same structure which employs the same materials and inherently has the claimed properties (beginning dry density, expanded wet density, CDH and expansion rate) or it would be obvious to optimize the Rhim structure to achieve these properties.

- While admitting that the Rhim structure also fails to include a wet strength binder, the Office Action adds the Hollenberg reference to the combination and asserts that it would have been obvious to add wet strength resins to enhance the resilience of the Rhim material when it is wet.
- While admitting that the combination of Rhim and Hollenberg fails to teach the use of crosslinked cellulosic fibers, the Office Action adds the Herron patent and asserts that it would have been obvious to employ crosslinked fibers in order to enhance the absorbency of the material.

The Applicants respectfully submit that the arguments presented above fail to establish a *prima facie* case of obviousness with respect to independent Claims 1, 26 and 36 as amended and claims depending from one of the independent claims. Specifically:

- The combination fails to teach or suggest a material whose fibers consist of a blend of crosslinked cellulosic fibers and high surface area cellulosic fibers (i.e., the combination fails to teach all claim limitations MPEP § 2143.03). The Applicants respectfully direct the Examiner to the amended claims and point out that the claims as amended describe the fibers in the claimed thin until wet material as consisting of a blend of crosslinked cellulose fibers and high surface area cellulosic fibers. The Applicants submit that such a composition for the fibers in the claimed thin until wet material precludes inclusion of a second fibrous component that could include Rhim's non-cellulosic fibers. Given that a material combining the teachings of Rhim, Hollenberg and Herron would, of

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necessity, contain non-cellulosic fibers, there is nothing in the cited combination that would lead one of ordinary skill to arrive at the claimed thin until wet material.

- The use of Hollenberg's wet strength resins would result in unpredictable variation in density leading one of ordinary skill away from the cited combination (i.e., the addition of the Hollenberg reference changes the principle of operation of the Rhim reference—MPEP § 2143.02). Specifically:
 - The Rhim reference teaches formation of a web using either a bonded carded web process or an air laying process (See page 7, lines 8–25 and the abstract). Both of these processes are dry processes. The webs are subsequently compressed (page 9, lines 22–24 and page 10, lines 19–21) from a low density state to a higher density thinner state. The webs are held in this higher density state by a binder. The binder may be hydrogen bonding (page 9, lines 23–24) or a moisture sensitive binder (page 10, line 25–page 11, line 12). The only mention of water in the Rhim reference is that water triggers release of the binder allowing expansion from the higher density state to the lower density state.
 - The Office Action attempts to use the Hollenberg reference in an attempt to overcome the admitted failure of the Rhim reference to disclose a wet strength binder. However, as is well known in the papermaking arts, the wet strength resins disclosed by Hollenberg all require the presence of water to facilitate a chemical reaction between the resin and the hydroxyl groups on cellulose fibers (see col. 4, lines 53–65). Otherwise, the resins do not provide any wet strength.

The Applicants respectfully submit that the application of a water solution of Hollenberg's wet strength resins (necessary for formation of wet strength) to Rhim's webs would result in release of Rhim's binder. This release would occur if the binder comprised hydrogen bonds or a moisture sensitive binder or a combination of the two. In addition, the application of a water solution of wet strength resin would solubilize an indeterminate amount of a water sensitive binder so it is no longer available to maintain

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Rhim's web in a higher density state. Net, the Applicants respectfully submit that the application of Hollenberg's wet strength resins to Rhim's webs changes the principle of operation of the Rhim reference and that one of ordinary skill in the art would be led away from such application. In response to similar arguments by the Applicants in the response mailed on February 12, 2003, the Examiner states: "However, Rhim teaches that other binder such as powder binders, moisture triggerable binders and fibrous binders may be employed instead of hydrogen bonding." In response, the Applicants respectfully direct the Examiner to page 10, line 25--page 11, line 1 and point out that all of the binders listed in the Office Action are specifically identified as being moisture sensitive. The Applicants further point out that Rhim clearly teaches that such moisture sensitive binders release upon exposure to water. The Office Action also argues that, Hollenberg teaches that the wet strength resins may be applied by spraying and that Rhim teaches that, as long as moisture is kept at 10% or below hydrogen bonds may form. In response, the Applicants point out that a spraying operation will, of necessity, result in full saturation of the surface where the spray is first applied no matter what the average moisture level of a web is. Thus, there would be an indeterminate amount of Rhim's web saturated with a solution of Hollenberg's resins. The Applicants respectfully submit that such saturation will result in triggering of at least a portion of Rhim's binders with a resulting unpredictable change in density even if the procedure described in the Office action is used. In summary, the fact that Rhim may disclose binders does nothing to mitigate the release thereof, allowing the web to revert to a low density configuration, if Hollenberg's resins are applied (even by spraying). Said another way, the arguments in the present Office Action fail to refute the Applicants' previous arguments or the present restatement thereof that the use of Hollenberg's wet strength resins changes Rhim's principle of operation.

Therefore, the Applicants respectfully submit that they have shown that the Office Action has failed to establish a *prima facie* case of obviousness with respect to Claims 1, 26 and 36 as amended. The Applicants also respectfully point out that Claims 2-7, 10-12, 13-15, 27, 28,

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and 31 depend from one of Claims 1 or 26, having all the limitations of the base claim. The Applicants also note that Claim 32 was canceled in the response dated February 12, 2003. Therefore, the Applicants respectfully request that the Examiner reconsider the rejection of Claims 1-7, 10-12, 13-15, 26-28, 31 and 36 in light of these discussions, withdraw the rejection and allow the claims.

**Rejection over Rhim, et al. (WO 99/32060) in view of
Hollenberg, et al. (US 5,779,860) and Herron, et al. (US 5,137,537)
and further in view of Seger, et al. (US 5,800,416)**

The Office Action rejects Claims 20, 21, and 30 under 35 USC § 103 (a) as being unpatentable over the combination of Rhim, Hollenberg and Heron as discussed above and further in view of Seger, et al. (US 5,800,416). The Office Action admits that Rhim fails to disclose high surface area fibers and adds the Seger patent to overcome this deficiency. The Office Action states that the Seger patent teaches incorporating high surface area fibers, such as crill, will enhance the absorbency of absorbent materials by providing capillary pressure to the fluid absorbent member (col. 7, lines 18-46). The Office Action concludes by asserting that it would have been obvious to add high surface area fibers to the structure of the Rhim reference in order to enhance the absorbency of the material.

The Applicants respectfully point out that Claims 20 and 21 depend from Claim 1 and that Claim 30 depends from Claim 26. The Applicants have already shown above how the base claims are unobvious over the combination of Rhim, Hollenberg and Herron. The addition of the Seger patent does not change this situation because:

- The new combination of Rhim, Hollenberg, Herron and Seger still fails to teach or describe structures comprising a blend of fibers where the fibers consist of crosslinked and high surface area cellulosic fibers, a polymeric temporary binding means and a wet strength means that has a compressed dry density and an expanded wet density when the densities are measured under a confining pressure of 0.2 psi.

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- One of ordinary skill would be led away from adding materials in order to increase the capillary pressure as suggested by the Office Action. The Applicants respectfully direct the Examiner to page, 14, lines 6-10 and point out that increased capillary pressure is undesirable for a material suitable for use as an acquisition member because a high capillary pressure means that an even higher capillary pressure is necessary to remove aqueous fluids from the material (page 8, lines 16-32).

Given that the Applicants have shown that the cited combination fails to make Claims 20, 21 and 30 obvious, they respectfully request reconsideration and withdrawal of the rejection of these claims over the combination of Rhim, Hollenberg, Herron and Seger, et al. and that Claims 20, 21 and 30 be allowed.

**Rejection over Rhim, et al. (WO 99/32060) in view of
Hollenberg, et al. (US 5,779,860) and Herron, et al. (US 5,137,537)
and further in view of Lippert, et al. (US 4,861,652)**

Using the combination of Rhim, Hollenberg and Heron as discussed above as the basis for the absorbent structure, the Office Action rejects Claim 34 over the combination by adding Lippert thereto. Lippert is said to provide the claimed softening process.

The Applicants direct the Examiner to Claim 1 as amended and point out that they have shown above why the combination of Rhim, Hollenberg and Herron references fails to make the amended claim obvious. Claim 34 depends from Claim 1 and adds a softening limitation thereto. The addition of the Lippert Reference still fails to overcome the failure of the combination of Rhim, Hollenberg and Herron to describe the presently claimed structure that comprises a blend of fibers consisting of crosslinked cellulose fibers and high surface area cellulose fibers, wet strength means and polymeric temporary binding means where the structure has the claimed combination of a compressed dry density and an expanded wet density when the densities are measured under a confining pressure of 0.2 psi. Given that the Applicants have shown that the combination of Rhim, Hollenberg and Heron and Lippert fail to make Claim 1 as amended obvious and given that Claim 34 depends from Claim 1, having

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all the limitations of the base claim, the Applicants respectfully request that the Examiner reconsider the rejection of Claim 34, withdraw it and allow the claim.

SUMMARY

All of the rejections in the Office Action have been discussed as have the distinctions between the cited references and the claimed invention. No new matter has been added by the Amendment. In light of the amendments to the claims and discussions contained herein, the Applicants respectfully request reconsideration of the rejections, their withdrawal, and allowance of all of the claims. Issuance of a Notice of Allowance at an early date is earnestly solicited.

Respectfully submitted,

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